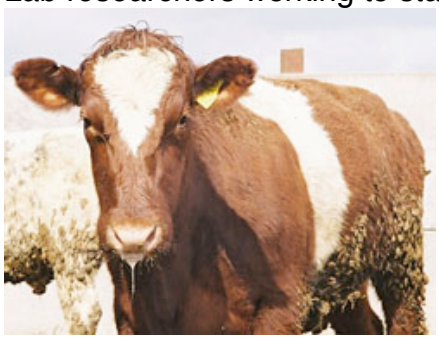
LAWRENCE LIVERMORE
REPORT

A weekly collection of scientific and technological achievements from Lawrence Livermore National Laboratory: Feb. 18-22, 2008.

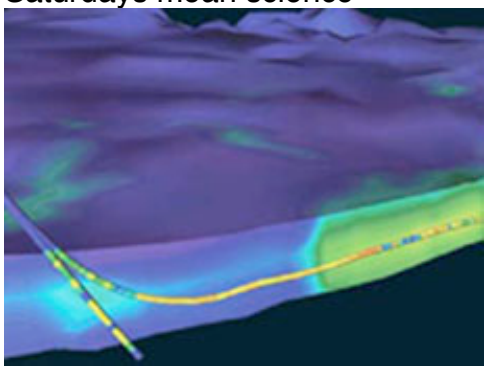
Lab researchers working to stamp out foot and mouth disease



Foot-and-mouth disease, which can be deadly to livestock as well as the economy, has not been seen in the United States since 1929. Lab researchers are doing their best to keep it that way, thanks to the development of a rapid diagnostic test that checks for this disease and six look-alike diseases, some of which occur on U.S. shores. Their work, to be published in the *Journal of Clinical Microbiology* in March, details how this prototype worked on clinical samples tested in the United Kingdom.

For the story, see https://newsline.llnl.gov/articles/2008/feb/02.22.08_cows.php

Saturdays mean science



Got Science? The Laboratory does – every Saturday morning, for a limited series of free lectures. Science on Saturday, LLNL's popular lecture series for middle and high school students, recently returned for a five-week winter run (the series returns in the late summer and fall). Now in its 14th year, the series pairs an LLNL scientist or engineer with a teacher from the local school districts to lecture

on myriad science topics -- from fusion energy to saving the environment, dark matter to DNA and much more.

Each year the lecture series continues to grow, attracting standing-room only crowds. Teachers attending the presentations receive a copy of the slides, along with a DVD so they can take the lecture back to their classrooms. Lectures also are available on the University of California television network, at http://www.uctv.tv/series/index.asp?show=show&seriesnumber=182

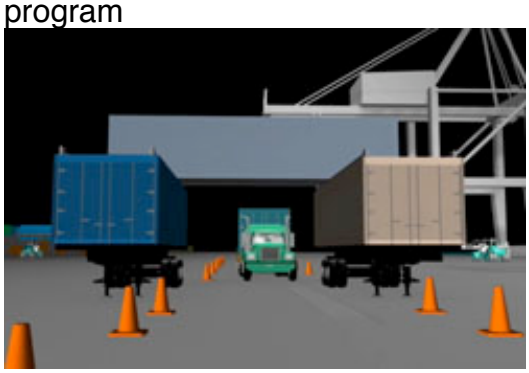
For more on Science on Saturday, see https://publicaffairs.llnl.gov/news/news_releases/2008/NR-08-01-08.html

Wanted: nuclear super sleuths

A terrorist nuclear explosion devastates Manhattan, but no group takes credit. The pressure on the U.S. president to retaliate is intense. Acting on sketchy information, the president orders an attack, but it turns out to be the wrong terrorists, in the wrong country. Things go downhill from there. To avoid that and other nightmare scenarios, a group of 12 scientists with extensive nuclear expertise, headed by former LLNL Director Mike May, is urging an international push to improve the science of nuclear forensics.

For more, see http://www.medicalnewstoday.com/articles/97662.php

National Academy of Engineering reports on Lab's active neutron interrogation program



From the beginning of the nuclear age, the materials suitable for making a weapon have been accumulating around the world. Nuclear security therefore represents one of the most urgent policy issues of the 21st century. The National Academy of Engineering this week takes a look at one of the ways LLNL researchers are contributing to this issue –an active neutron interrogation program to assist in the detection of fissile materials that may be smuggled into the country for use in a terrorist attack.

For more see
http://www.engineeringchallenges.org/cms/8996/9134.aspx

LLNL researchers honored for excellence
The Lab's scientists and engineers continue to be awarded for their outstanding work. Lisa Poyneer of Engineering has won the UC Davis Electrical and Computer Engineering Department Jain Prize for best Ph.D dissertation. Ronald Page, also from Engineering, received a Sigma Xi Student Research award for excellence in undergraduate research based upon his work at LLNL last summer. The award, in the field of mathematics and computer science, was for his work on “Foreign Animal Diseases and Patterns in Cluster Analysis.”

LLNL researcher helps NASA with Mars Sample Return Technology

LLNL physicist John Whitehead has returned from the Lunar and Planetary Institute in Houston, where he participated in NASA's Mars Sample Return (MSR) Technology Workshop. As an invited specialist on the subject of Mars Ascent, Whitehead presented Pumped Propulsion Technology to Mars Program managers from NASA Headquarters and the Jet Propulsion Laboratory. Whitehead put the technology benefits in context with his view of the unsolved problem of launching off of Mars with a miniature rocket.

For more on the Mars Sample Return project, see
http://www.lpi.usra.edu/features/mars_sample/

LLNL is managed by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy's National Nuclear Security Administration.

LLNL applies and advances science and technology to help ensure national security and global stability. Through multi-disciplinary research and development, with particular expertise in high-energy-density physics, laser science, high-performance computing and science/engineering at the nanometer/subpicosecond scale, LLNL innovations improve security, meet energy and environmental needs and strengthen U.S. economic competitiveness. The Laboratory also partners with other research institutions, universities and industry to bring the full weight of the nation's science and technology community to bear on solving problems of national importance.

To send input to the *Livermore Lab Report,* send e-mail mailto:labreport@llnl.gov.